Baskar, P.
10/039770

FILE 'HCAPLUS' ENTERED AT 11:28:37 ON 08 OCT 2003

L1 2 SEA FILE=HCAPLUS ABB=ON PLU=ON TGAMA(2A)(1 OR I) OR TGAMA1 OR TGAMAI

L5 4 SEA FILE=HCAPLUS ABB=ON PLU=ON (TOXOPLASMA OR GONDII OR TG)(1W)(APICAL MEMBRANE OR AMA#)

L6 4 L1 OR L5

L6 ANSWER 1 OF 4 HCAPLUS COPYRIGHT 2003 ACS on STN

ACCESSION NUMBER: 2002:522759 HCAPLUS
DOCUMENT NUMBER: 137:243635
TITLE: Evolutionary relationships of conserved cysteine-rich motifs in adhesive molecules of malaria parasites
AUTHOR(S): Michon, Pascal; Stevens, Jamie R.; Kaneko, Osamu; Adams, John H.
CORPORATE SOURCE: Department of Biological Sciences, University of Notre Dame, Notre Dame, IN, 46556, USA
SOURCE: Molecular Biology and Evolution (2002), 19(7), 1128-1142
CODEN: MBEVEO; ISSN: 0737-4038
PUBLISHER: Society for Molecular Biology and Evolution
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Malaria parasites invade erythrocytes in a process mediated by a series of mol. interactions. Invasion of human erythrocytes by Plasmodium vivax is dependent upon the presence of a single receptor, but P. falciparum, as well as some other species, exhibits the ability to utilize multiple alternative invasion pathways. Conserved cysteine-rich domains play important roles at critical times during this invasion process and at other stages in the life cycle of malaria parasites. Duffy-binding-like (DBL) domains, expressed as a part of the erythrocyte-binding proteins (DBL-EBP), are such essential cysteine-rich ligands that recognize specific host cell surface receptors. DBL-EBP, which are products of the erythrocyte-binding-like (ebl) gene family, act as critical determinants of erythrocyte specificity and are the best-defined ligands from invasive stages of malaria parasites. The ebl genes include the P. falciparum erythrocyte-binding antigen-175 (EBA-175) and P. vivax Duffy-binding protein. DBL domains also mediate cytoadherence as a part of the variant erythrocytic membrane protein-1 (PfEMP-1) antigens expressed from var genes on the surface of P. falciparum-infected erythrocytes. A paralogue of the ebl family is the malarial ligand MAEBL, which has a chimeric structure where the DBL domain is functionally replaced with a distinct cysteine-rich erythrocyte-binding domain with similarity to the apical membrane antigen-1 (AMA-1) ligand domain. The Plasmodium AMA-1 ligand domain, which encompasses the extracellular cysteine domains 1 and 2 and is well conserved in a **Toxoplasma gondii AMA**-1, has erythrocyte-binding activity distinct from that of MAEBL. These important families of Plasmodium mols. (DBL-EBP, PfEMP-1, MAEBL, AMA-1) are interrelated through the MAEBL. Because MAEBL and the other ebl products have the characteristics expected of homologous ligands involved in equivalent alternative invasion pathways to each other, we sought to better understand their roles during invasion by determining their relative

origins in the Plasmodium genome. An anal. of their multiple cysteine-rich domains permitted a unique insight into the evolutionary development of Plasmodium. Our data indicate that maebl, ama-1, and ebl genes have ancient origins which predate Plasmodium speciation. The maebl evolved as a single locus, including its unique chimeric structure, in each Plasmodium species, in parallel with the ama-1 and the ebl genes families. The ancient character of maebl, along with its different expression characteristics suggests that MAEBL is unique and does not play an alternative role in invasion to ebl products such as EBA-175. The multiple P. falciparum ebl paralogues that express DBL domains, which have occurred by duplication and diversification, potentially do provide multiple functionally equivalent ligands to EBA-175 for alternative invasion pathways.

REFERENCE COUNT: 87 THERE ARE 87 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2001:673239 HCAPLUS
DOCUMENT NUMBER: 136:366181
TITLE: Erythrocyte-binding activity of Plasmodium yoelii apical membrane antigen-1 expressed on the surface of transfected COS-7 cells
AUTHOR(S): Fraser, T. S.; Kappe, S. H. I.; Narum, D. L.; Van Buskirk, K. M.; Adams, J. H.
CORPORATE SOURCE: Department of Biological Sciences, University of Notre Dame, Notre Dame, IN, 46556-0369, USA
SOURCE: Molecular and Biochemical Parasitology (2001), 117(1), 49-59
CODEN: MBIPDP; ISSN: 0166-6851
PUBLISHER: Elsevier Science Ireland Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English

AB Malaria merozoite surface and apical organellar mols. facilitate invasion into the host erythrocyte. The underlying mol. mechanisms of invasion are poorly understood, and there are few data to delineate roles for individual merozoite proteins. Apical membrane antigen-1 (AMA-1) is a conserved apicomplexan protein present in the apical organelle complex and at times on the surface of Plasmodium and Toxoplasma zoites. AMA-1 domains 1/2 are conserved between Plasmodium and Toxoplasma and have similarity to the defined ligand domains of MAEBL, an erythrocyte-binding protein identified from Plasmodium yoelii. We expressed selected portions of the AMA-1 extracellular domain on the surface of COS-7 cells to assay for erythrocyte-binding activity. The P. yoelii AMA-1 domains 1/2 mediated adhesion to mouse and rat erythrocytes, but not to human erythrocytes. Adhesion to rodent erythrocytes was sensitive to trypsin and chymotrypsin, but not to neuraminidase. Other parts of the AMA-1 ectodomain, including the full-length extracellular domain, mediated significantly less erythrocyte adhesion activity than the contiguous domains 1/2. The results support the role of AMA-1 as an adhesion mol. during merozoite invasion of erythrocytes and identify highly conserved domains 1/2 as the principal ligand of the Plasmodium AMA-1 and possibly the **Toxoplasma AMA**-1. Identification of the AMA-1 ligand domains involved in interaction between the parasite and host cell should help target the development of new therapies to block growth of the blood-stage

malaria parasites.
REFERENCE COUNT: 47 THERE ARE 47 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 3 OF 4 HCAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2001:374799 HCAPLUS
DOCUMENT NUMBER: 136:84331
TITLE: Toxoplasma gondii homologue of Plasmodium apical membrane antigen 1 is involved in invasion of host cells
AUTHOR(S): Hehl, Adrian B.; Lekutis, Christine; Grigg, Michael E.; Bradley, Peter J.; Dubremetz, Jean-Francois; Ortega-Barria, Eduardo; Boothroyd, John C.
CORPORATE SOURCE: Department of Microbiology and Immunology, Stanford University School of Medicine, Stanford, CA, 94305-5124, USA
SOURCE: Infection and Immunity (2000), 68(12), 7078-7086
CODEN: INFIBR; ISSN: 0019-9567
PUBLISHER: American Society for Microbiology
DOCUMENT TYPE: Journal
LANGUAGE: English
AB Proteins with constitutive or transient localization on the surface of Apicomplexa parasites are of particular interest for their potential role in the invasion of host cells. We describe the identification and characterization of **TgAMA1**, the Toxoplasma gondii homolog of the Plasmodium apical membrane antigen 1 (AMA1), which has been shown to elicit a protective immune response against merozoites dependent on the correct pairing of its numerous disulfide bonds. **TgAMA1** shows between 19% (Plasmodium berghei) and 26% (Plasmodium yoelii) overall identity to the different Plasmodium AMA1 homologs and has a conserved arrangement of 16 cysteine residues and a putative transmembrane domain, indicating a similar architecture. The single-copy **TgAMA1** gene is interrupted by seven introns and is transcribed into an mRNA of .apprx.3.3 kb. The **TgAMA1** protein is produced during intracellular tachyzoite replication and initially localizes to the micronemes, as determined by immunofluorescence assay and immunoelectron microscopy. Upon release of mature tachyzoites, **TgAMA1** is found distributed predominantly on the apical end of the parasite surface. A .apprx.54-kDa cleavage product of the large ectodomain is continuously released into the medium by extracellular parasites. Mouse antiserum against recombinant **TgAMA1** blocked invasion of new host cells by approx. 40%. This and our inability to produce a viable **TgAMA1** knock-out mutant indicate that this phylogenetically conserved protein fulfills a key function in the invasion of host cells by extracellular T. gondii tachyzoites.
REFERENCE COUNT: 46 THERE ARE 46 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L6 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2003 ACS on STN
ACCESSION NUMBER: 2000:829939 HCAPLUS
DOCUMENT NUMBER: 134:128290
TITLE: The Toxoplasma homolog of Plasmodium apical membrane antigen-1 (AMA-1) is a microneme

10/039770

protein secreted in response to elevated intracellular calcium levels

AUTHOR(S): Donahue, C. G.; Carruthers, V. B.; Gilk, S. D.; Ward, G. E.

CORPORATE SOURCE: Department of Microbiology and Molecular Genetics, University of Vermont, Burlington, VT, 05405, USA

SOURCE: Molecular and Biochemical Parasitology (2000), 111(1), 15-30
CODEN: MBIPDP; ISSN: 0166-6851

PUBLISHER: Elsevier Science Ireland Ltd.

DOCUMENT TYPE: Journal

LANGUAGE: English

AB A monoclonal antibody (MAb) has been generated against a novel 63 kDa surface/apical antigen of Toxoplasma gondii tachyzoites which is identified here as **TgAMA-1**, the Toxoplasma homolog of Plasmodium apical membrane antigen-1 (AMA-1). Sequence anal., phase partitioning in Triton X-114, and labeling of **TgAMA-1** with iodonaphthalene azide all suggest that **TgAMA-1** is a type I transmembrane protein. There is a high degree of sequence similarity between **TgAMA -1** and Plasmodium AMA-1, most notably in the position of conserved cysteine residues within the protein's predicted extracellular domain. In contrast to full length Plasmodium AMA-1, which has previously been localized to the rhoptries, it is shown here by immunofluorescence and immunoelectron microscopy that intracellular **TgAMA-1** is found in the micronemes. A 53 kDa N-terminal proteolytic fragment of **TgAMA-1** is constitutively secreted from the parasite at 37°C. As is the case with other microneme proteins, the proteolytic processing and secretion of **TgAMA -1** is dramatically enhanced in response to treatments which increase intracellular calcium levels.

REFERENCE COUNT: 44 THERE ARE 44 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

(FILE 'MEDLINE, BIOSIS, EMBASE, WPIDS, CONFSCI, SCISEARCH, JICST-EPLUS, JAPIO' ENTERED AT 11:33:08 ON 08 OCT 2003)

L7 10 S L1
L8 8 S L5
L9 18 S L7 OR L8
L10 7 DUP REM L9 (11 DUPLICATES REMOVED)

L10 ANSWER 1 OF 7 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN

ACCESSION NUMBER: 2002:287181 BIOSIS

DOCUMENT NUMBER: PREV200200287181

TITLE: Intramembrane cleavage of microneme proteins at the surface of the apicomplexan parasite Toxoplasma gondii.

AUTHOR(S): Opitz, Corinna; Di Cristina, Manlio; Reiss, Matthias; Ruppert, Thomas; Crisanti, Andrea; Soldati, Dominique (1)

CORPORATE SOURCE: (1) Zentrum fuer Molekulare Biologie, Universitaet Heidelberg, INF282, D-69120, Heidelberg: d.soldati@ic.ac.uk Germany

SOURCE: EMBO (European Molecular Biology Organization)

Searcher : Shears 308-4994

Journal, (April 2, 2002) Vol. 21, No. 7, pp. 1577-1585. http://www.emboj.org/. print.
ISSN: 0261-4189.
DOCUMENT TYPE: Article
LANGUAGE: English

AB Apicomplexan parasites actively secrete proteins at their apical pole as part of the host cell invasion process. The adhesive micronemal proteins are involved in the recognition of host cell receptors. Redistribution of these receptor-ligand complexes toward the posterior pole of the parasites is powered by the actomyosin system of the parasite and is presumed to drive parasite gliding motility and host cell penetration. The microneme protein protease termed MPP1 is responsible for the removal of the C-terminal domain of TgMIC2 and for shedding of the protein during invasion. In this study, we used site-specific mutagenesis to determine the amino acids essential for this cleavage to occur. Mapping of the cleavage site on TgMIC6 established that this processing occurs within the membrane-spanning domain, at a site that is conserved throughout all apicomplexan microneme proteins. The fusion of the surface antigen SAG1 with these transmembrane domains excluded any significant role for the ectodomain in the cleavage site recognition and provided evidence that MPP1 is constitutively active at the surface of the parasites, ready to sustain invasion at any time.

L10 ANSWER 2 OF 7 MEDLINE on STN DUPLICATE 1

ACCESSION NUMBER: 2002339905 MEDLINE
DOCUMENT NUMBER: 22077637 PubMed ID: 12082132
TITLE: Evolutionary relationships of conserved cysteine-rich motifs in adhesive molecules of malaria parasites.
AUTHOR: Michon Pascal; Stevens Jamie R; Kaneko Osamu; Adams John H
CORPORATE SOURCE: Department of Biological Sciences, University of Notre Dame, Indiana 46556, USA.
CONTRACT NUMBER: R29/R01 AI33656 (NIAID)
SOURCE: MOLECULAR BIOLOGY AND EVOLUTION, (2002 Jul) 19 (7) 1128-42.
Journal code: 8501455. ISSN: 0737-4038.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
OTHER SOURCE: GENBANK-AY042082; GENBANK-AY042083
ENTRY MONTH: 200212
ENTRY DATE: Entered STN: 20020626
Last Updated on STN: 20021218
Entered Medline: 20021216

AB Malaria parasites invade erythrocytes in a process mediated by a series of molecular interactions. Invasion of human erythrocytes by Plasmodium vivax is dependent upon the presence of a single receptor, but P. falciparum, as well as some other species, exhibits the ability to utilize multiple alternative invasion pathways. Conserved cysteine-rich domains play important roles at critical times during this invasion process and at other stages in the life cycle of malaria parasites. Duffy-binding-like (DBL) domains, expressed as a part of the erythrocyte-binding proteins (DBL-EBP), are such essential cysteine-rich ligands that recognize specific host cell surface receptors. DBL-EBP, which are products of the erythrocyte-binding-like (ebl) gene family, act as critical

determinants of erythrocyte specificity and are the best-defined ligands from invasive stages of malaria parasites. The ebl genes include the P. falciparum erythrocyte-binding antigen-175 (EBA-175) and P. vivax Duffy-binding protein. DBL domains also mediate cytoadherence as a part of the variant erythrocytic membrane protein-1 (PfEMP-1) antigens expressed from var genes on the surface of P. falciparum-infected erythrocytes. A paralogue of the ebl family is the malarial ligand MAEBL, which has a chimeric structure where the DBL domain is functionally replaced with a distinct cysteine-rich erythrocyte-binding domain with similarity to the apical membrane antigen-1 (AMA-1) ligand domain. The Plasmodium AMA-1 ligand domain, which encompasses the extracellular cysteine domains 1 and 2 and is well conserved in a **Toxoplasma gondii AMA**-1, has erythrocyte-binding activity distinct from that of MAEBL. These important families of Plasmodium molecules (DBL-EBP, PfEMP-1, MAEBL, AMA-1) are interrelated through the MAEBL. Because MAEBL and the other ebl products have the characteristics expected of homologous ligands involved in equivalent alternative invasion pathways to each other, we sought to better understand their roles during invasion by determining their relative origins in the Plasmodium genome. An analysis of their multiple cysteine-rich domains permitted a unique insight into the evolutionary development of PLASMODIUM: Our data indicate that maebl, ama-1, and ebl genes have ancient origins which predate Plasmodium speciation. The maebl evolved as a single locus, including its unique chimeric structure, in each Plasmodium species, in parallel with the ama-1 and the ebl genes families. The ancient character of maebl, along with its different expression characteristics suggests that MAEBL is unique and does not play an alternative role in invasion to ebl products such as EBA-175. The multiple P. falciparum ebl paralogues that express DBL domains, which have occurred by duplication and diversification, potentially do provide multiple functionally equivalent ligands to EBA-175 for alternative invasion pathways.

L10 ANSWER 3 OF 7 MEDLINE on STN DUPLICATE 2
ACCESSION NUMBER: 2001503191 MEDLINE
DOCUMENT NUMBER: 21436159 PubMed ID: 11551631
TITLE: Erythrocyte-binding activity of Plasmodium yoelii apical membrane antigen-1 expressed on the surface of transfected COS-7 cells.
AUTHOR: Fraser T S; Kappe S H; Narum D L; VanBuskirk K M; Adams J H
CORPORATE SOURCE: Department of Biological Sciences, University of Notre Dame, Notre Dame, IN 46556-0369, USA.
CONTRACT NUMBER: R29/R01 AI33656 (NIAID)
SOURCE: MOLECULAR AND BIOCHEMICAL PARASITOLOGY, (2001 Sep 28) 117 (1) 49-59.
Journal code: 8006324. ISSN: 0166-6851.
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200112
ENTRY DATE: Entered STN: 20010913
Last Updated on STN: 20020122
Entered Medline: 20011205
AB Malaria merozoite surface and apical organellar molecules facilitate

invasion into the host erythrocyte. The underlying molecular mechanisms of invasion are poorly understood, and there are few data to delineate roles for individual merozoite proteins. Apical membrane antigen-1 (AMA-1) is a conserved apicomplexan protein present in the apical organelle complex and at times on the surface of Plasmodium and Toxoplasma zoites. AMA-1 domains 1/2 are conserved between Plasmodium and Toxoplasma and have similarity to the defined ligand domains of MAEBL, an erythrocyte-binding protein identified from Plasmodium yoelii. We expressed selected portions of the AMA-1 extracellular domain on the surface of COS-7 cells to assay for erythrocyte-binding activity. The P. yoelii AMA-1 domains 1/2 mediated adhesion to mouse and rat erythrocytes, but not to human erythrocytes. Adhesion to rodent erythrocytes was sensitive to trypsin and chymotrypsin, but not to neuraminidase. Other parts of the AMA-1 ectodomain, including the full-length extracellular domain, mediated significantly less erythrocyte adhesion activity than the contiguous domains 1/2. The results support the role of AMA-1 as an adhesion molecule during merozoite invasion of erythrocytes and identify highly conserved domains 1/2 as the principal ligand of the Plasmodium AMA-1 and possibly the **Toxoplasma AMA**-1. Identification of the AMA-1 ligand domains involved in interaction between the parasite and host cell should help target the development of new therapies to block growth of the blood-stage malaria parasites.

L10 ANSWER 4 OF 7 MEDLINE on STN DUPLICATE 3
ACCESSION NUMBER: 2001053086 MEDLINE
DOCUMENT NUMBER: 20536458 PubMed ID: 11083833
TITLE: Toxoplasma gondii homologue of plasmodium apical membrane antigen 1 is involved in invasion of host cells.
AUTHOR: Hehl A B; Lekutis C; Grigg M E; Bradley P J; Dubremetz J F; Ortega-Barria E; Boothroyd J C
CORPORATE SOURCE: Department of Microbiology and Immunology, Stanford University School of Medicine, Stanford, California 94305-5124, USA.
CONTRACT NUMBER: AI10373 (NIAID)
AI21423 (NIAID)
AI45057 (NIAID)
SOURCE: INFECTION AND IMMUNITY, (2000 Dec) 68 (12) 7078-86. Journal code: 0246127. ISSN: 0019-9567.
PUB. COUNTRY: United States
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English
FILE SEGMENT: Priority Journals
ENTRY MONTH: 200012
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20001213

AB Proteins with constitutive or transient localization on the surface of Apicomplexa parasites are of particular interest for their potential role in the invasion of host cells. We describe the identification and characterization of **TgAMA1**, the Toxoplasma gondii homolog of the Plasmodium apical membrane antigen 1 (AMA1), which has been shown to elicit a protective immune response against merozoites dependent on the correct pairing of its numerous disulfide bonds. **TgAMA1** shows between 19% (Plasmodium berghei) and 26% (Plasmodium yoelii) overall identity to

the different Plasmodium AMA1 homologs and has a conserved arrangement of 16 cysteine residues and a putative transmembrane domain, indicating a similar architecture. The single-copy **TgAMA1** gene is interrupted by seven introns and is transcribed into an mRNA of approximately 3.3 kb. The **TgAMA1** protein is produced during intracellular tachyzoite replication and initially localizes to the micronemes, as determined by immunofluorescence assay and immunoelectron microscopy. Upon release of mature tachyzoites, **TgAMA1** is found distributed predominantly on the apical end of the parasite surface. A approximately 54-kDa cleavage product of the large ectodomain is continuously released into the medium by extracellular parasites. Mouse antiserum against recombinant **TgAMA1** blocked invasion of new host cells by approximately 40%. This and our inability to produce a viable **TgAMA1** knock-out mutant indicate that this phylogenetically conserved protein fulfills a key function in the invasion of host cells by extracellular T. gondii tachyzoites.

L10 ANSWER 5 OF 7 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN
ACCESSION NUMBER: 2002:175451 BIOSIS
DOCUMENT NUMBER: PREV200200175451
TITLE: The Toxoplasma homolog of Plasmodium apical membrane antigen-1 (AMA-1) is a microneme protein which is secreted from the parasite in response to elevated intracellular calcium levels.
AUTHOR(S): Donahue, Carolyn G. (1); Carruthers, Vern B.; Gilk, Stacey D. (1); Ward, Gary E.
CORPORATE SOURCE: (1) University of Vermont, Burlington, VT USA
SOURCE: Molecular Biology of the Cell, (Dec., 2000) Vol. 11, No. Supplement, pp. 237a.
http://www.molbiolcell.org/. print.
Meeting Info.: 40th American Society for Cell Biology Annual Meeting San Francisco, CA, USA December 09-13, 2000
ISSN: 1059-1524.
DOCUMENT TYPE: Conference
LANGUAGE: English

L10 ANSWER 6 OF 7 MEDLINE on STN DUPLICATE 4
ACCESSION NUMBER: 2001078176 MEDLINE
DOCUMENT NUMBER: 20542026 PubMed ID: 11087913
TITLE: The Toxoplasma homolog of Plasmodium apical membrane antigen-1 (AMA-1) is a microneme protein secreted in response to elevated intracellular calcium levels.
AUTHOR: Donahue C G; Carruthers V B; Gilk S D; Ward G E
CORPORATE SOURCE: Department of Microbiology and Molecular Genetics, University of Vermont, 214 Stafford Hall, Burlington, VT 05405, USA.
CONTRACT NUMBER: AI42355 (NIAID)
CA22435 (NCI)
SOURCE: MOLECULAR AND BIOCHEMICAL PARASITOLOGY, (2000 Nov) 111 (1) 15-30.
Journal code: 8006324. ISSN: 0166-6851.
PUB. COUNTRY: Netherlands
DOCUMENT TYPE: Journal; Article; (JOURNAL ARTICLE)
LANGUAGE: English

FILE SEGMENT: Priority Journals
ENTRY MONTH: 200101
ENTRY DATE: Entered STN: 20010322
Last Updated on STN: 20010322
Entered Medline: 20010111

AB A monoclonal antibody (MAb) has been generated against a novel 63 kDa surface/apical antigen of Toxoplasma gondii tachyzoites which is identified here as **TgAMA-1**, the Toxoplasma homolog of Plasmodium apical membrane antigen-1 (AMA-1). Sequence analysis, phase partitioning in Triton X-114, and labeling of **TgAMA-1** with iodonaphthalene azide all suggest that **TgAMA-1** is a type I transmembrane protein. There is a high degree of sequence similarity between **TgAMA -1** and Plasmodium AMA-1, most notably in the position of conserved cysteine residues within the protein's predicted extracellular domain. In contrast to full length Plasmodium AMA-1, which has previously been localized to the rhoptries, it is shown here by immunofluorescence and immunoelectron microscopy that intracellular **TgAMA-1** is found in the micronemes. A 53 kDa N-terminal proteolytic fragment of **TgAMA-1** is constitutively secreted from the parasite at 37 degrees C. As is the case with other microneme proteins, the proteolytic processing and secretion of **TgAMA -1** is dramatically enhanced in response to treatments which increase intracellular calcium levels.

L10 ANSWER 7 OF 7 WPIDS COPYRIGHT 2003 THOMSON DERWENT on STN
ACCESSION NUMBER: 1977-55307Y [31] WPIDS
TITLE: Polymer hardening monitoring - by estimating corresp. change in the value of the dielectric loss tangent.
DERWENT CLASS: A35 A93 L02 S03 S05
PATENT ASSIGNEE(S): (MOSU) MOSCOW LOMONOSOV UNIV
COUNTRY COUNT: 1
PATENT INFORMATION:

PATENT NO	KIND	DATE	WEEK	LA	PG
SU 522463	A	19761130	(197731)*		

PRIORITY APPLN. INFO: SU 1973-1913157 19730425
AN 1977-55307Y [31] WPIDS
AB SU 522463 A UPAB: 19930901
Polymer hardening process can be easily monitored by relating the degree of hardening to the change in the value of the dieelectric loss tg. of the material according to the formula H = (tg A - tg A0).Hmax/tgAmax where H is the hardening inded (% of unpolymerised resin), Hmax and **tg Amax** are the initial values (Hmax = 100%), tg A0 is the dielectric loss tg. of the fully hardened polymer and tg A is the running value at any instant of time. Calibration graphs can be constructed and used fro the routine tests. The method finds use in laboratory and in the mfr. of polymeric construction materials, e.g. polymer-concrete mix.

(FILE 'HCAPLUS, MEDLINE, BIOSIS, EMBASE, WPIDS, CONFSCI, SCISEARCH, JICST-EPLUS, JAPIO' ENTERED AT 11:35:43 ON 08 OCT 2003)

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L11         3048 SEA ABB=ON  PLU=ON  "WARD G"?/AU
L12           21 SEA ABB=ON  PLU=ON  "CONANT C"?/AU
L13         3921 SEA ABB=ON  PLU=ON  "WARD B"?/AU
L14            0 SEA ABB=ON  PLU=ON  L11 AND L12 AND L13
L15            1 SEA ABB=ON  PLU=ON  L11 AND (L12 OR L13)
L16            0 SEA ABB=ON  PLU=ON  L12 AND L13
L17         6989 SEA ABB=ON  PLU=ON  L11 OR L12 OR L13
L18           12 SEA ABB=ON  PLU=ON  L17 AND (TGAMA# OR (TOXOPLASMA OR
                 GONDII OR TG)(S)(APICAL OR AMA#))
L19           13 SEA ABB=ON  PLU=ON  L15 OR L18
L20            4 DUP REM L19 (9 DUPLICATES REMOVED)
```

— Author(s)

L20 ANSWER 1 OF 4 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN DUPLICATE 1

ACCESSION NUMBER: 2002:175451 BIOSIS
DOCUMENT NUMBER: PREV200200175451
TITLE: The **Toxoplasma** homolog of Plasmodium **apical** membrane antigen-1 (**AMA**-1) is a microneme protein which is secreted from the parasite in response to elevated intracellular calcium levels.
AUTHOR(S): Donahue, Carolyn G. (1); Carruthers, Vern B.; Gilk, Stacey D. (1); **Ward, Gary E.**
CORPORATE SOURCE: (1) University of Vermont, Burlington, VT USA
SOURCE: Molecular Biology of the Cell, (Dec., 2000) Vol. 11, No. Supplement, pp. 237a.
http://www.molbiolcell.org/. print.
Meeting Info.: 40th American Society for Cell Biology Annual Meeting San Francisco, CA, USA December 09-13, 2000
ISSN: 1059-1524.
DOCUMENT TYPE: Conference
LANGUAGE: English

L20 ANSWER 2 OF 4 HCAPLUS COPYRIGHT 2003 ACS on STN DUPLICATE 2

ACCESSION NUMBER: 2000:829939 HCAPLUS
DOCUMENT NUMBER: 134:128290
TITLE: The **Toxoplasma** homolog of Plasmodium **apical** membrane antigen-1 (**AMA**-1) is a microneme protein secreted in response to elevated intracellular calcium levels
AUTHOR(S): Donahue, C. G.; Carruthers, V. B.; Gilk, S. D.; **Ward, G. E.**
CORPORATE SOURCE: Department of Microbiology and Molecular Genetics, University of Vermont, Burlington, VT, 05405, USA
SOURCE: Molecular and Biochemical Parasitology (2000), 111(1), 15-30
CODEN: MBIPDP; ISSN: 0166-6851
PUBLISHER: Elsevier Science Ireland Ltd.
DOCUMENT TYPE: Journal
LANGUAGE: English
AB A monoclonal antibody (MAb) has been generated against a novel 63 kDa surface/**apical** antigen of **Toxoplasma** **gondii** tachyzoites which is identified here as **TgAMA**-1, the **Toxoplasma** homolog of Plasmodium **apical** membrane antigen-1 (**AMA**-1). Sequence anal., phase partitioning in Triton X-114, and labeling of **TgAMA**-1 with

iodonaphthalene azide all suggest that **TgAMA**-1 is a type I transmembrane protein. There is a high degree of sequence similarity between **TgAMA**-1 and Plasmodium AMA-1, most notably in the position of conserved cysteine residues within the protein's predicted extracellular domain. In contrast to full length Plasmodium AMA-1, which has previously been localized to the rhoptries, it is shown here by immunofluorescence and immunoelectron microscopy that intracellular **TgAMA**-1 is found in the micronemes. A 53 kDa N-terminal proteolytic fragment of **TgAMA**-1 is constitutively secreted from the parasite at 37°C. As is the case with other microneme proteins, the proteolytic processing and secretion of **TgAMA**-1 is dramatically enhanced in response to treatments which increase intracellular calcium levels.

REFERENCE COUNT: 44 THERE ARE 44 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L20 ANSWER 3 OF 4 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC. on STN

ACCESSION NUMBER: 1999:503849 BIOSIS
DOCUMENT NUMBER: PREV199900503849
TITLE: Evaluation of novel monoclonal antibodies for use in Toxoplasma gondii antigen capture assay.
AUTHOR(S): Grushka, D. (1); Serhir, B.; Carey, K.; **Ward, G. E.**; MacLean, J. D.; **Ward, B. J.**
CORPORATE SOURCE: (1) National Center of Parasite Serology, McGill University, Montreal, QC Canada
SOURCE: American Journal of Tropical Medicine and Hygiene, (Sept., 1999) Vol. 61, No. 3 SUPPL., pp. 495. Meeting Info.: 48th Annual Meeting of the American Society of Tropical Medicine and Hygiene Washington, D.C., USA November 28-December 2, 1999 American Society of Tropical Medicine and Hygiene . ISSN: 0002-9637.
DOCUMENT TYPE: Conference
LANGUAGE: English

L20 ANSWER 4 OF 4 HCAPLUS COPYRIGHT 2003 ACS on STN DUPLICATE 3

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DOCUMENT NUMBER: 132:106596
TITLE: 96-Well plates providing high optical resolution for high-throughput, immunofluorescence-based screening of monoclonal antibodies against Toxoplasma gondii
AUTHOR(S): **Ward, G. E.**; Carey, K. L.
CORPORATE SOURCE: Department of Microbiology and Molecular Genetics, University of Vermont, Burlington, VT, USA
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AB We have developed a method for high resolution, high magnification immunofluorescence-based screening in a multi-well format, using a recently introduced 96-well plate specifically developed for

fluorescence microscopy. We report here on the use of these plates to screen hybridoma supernatants for reactivity with specific subcellular compartments of the protozoan parasite Toxoplasma gondii. This has proven to be a powerful screening strategy, particularly when combined with high-throughput immunoblotting, and has enabled us to generate nine different monoclonal antibodies (MAbs) against either the periphery or structures within the **apical** end of T. **gondii**. The availability of a disposable, inexpensive, 96-well plate with optical properties suitable for high magnification imaging could lead to applications in a variety of fluorescence-based screening protocols.

REFERENCE COUNT: 15 THERE ARE 15 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

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